



**Energy and Environmental Analysis, Inc.**  
an ICF International Company



# NYSERDA No Indian Point Case Results

**June 26, 2009**

**Contacts:**

**Kevin R. Petak (kpetak@icfi.com)**  
Vice President, Gas Market Modeling

**Frank E. Brock (fbrock@icfi.com)**  
Senior Energy Market Specialist

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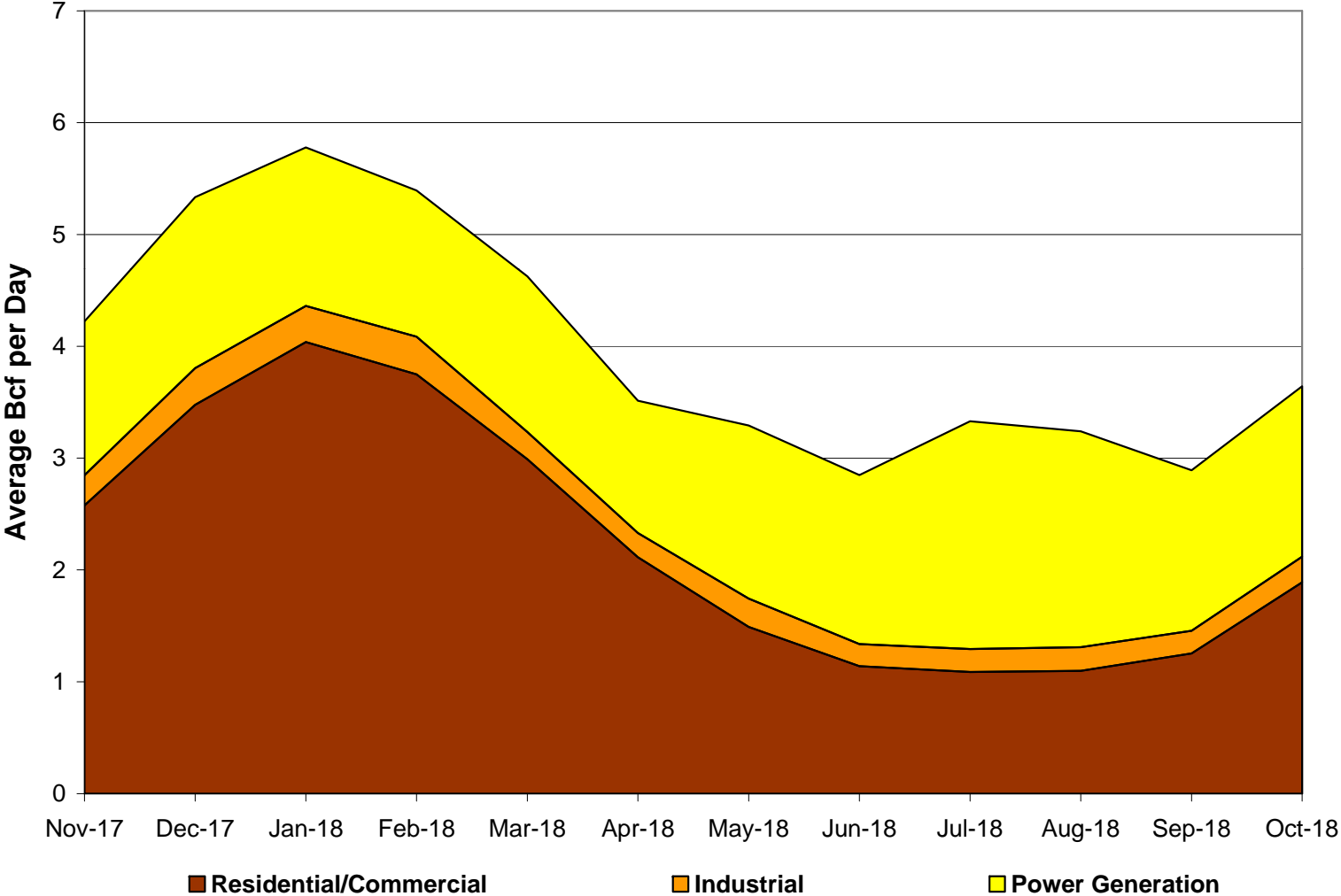
# Sensitivity Assumptions

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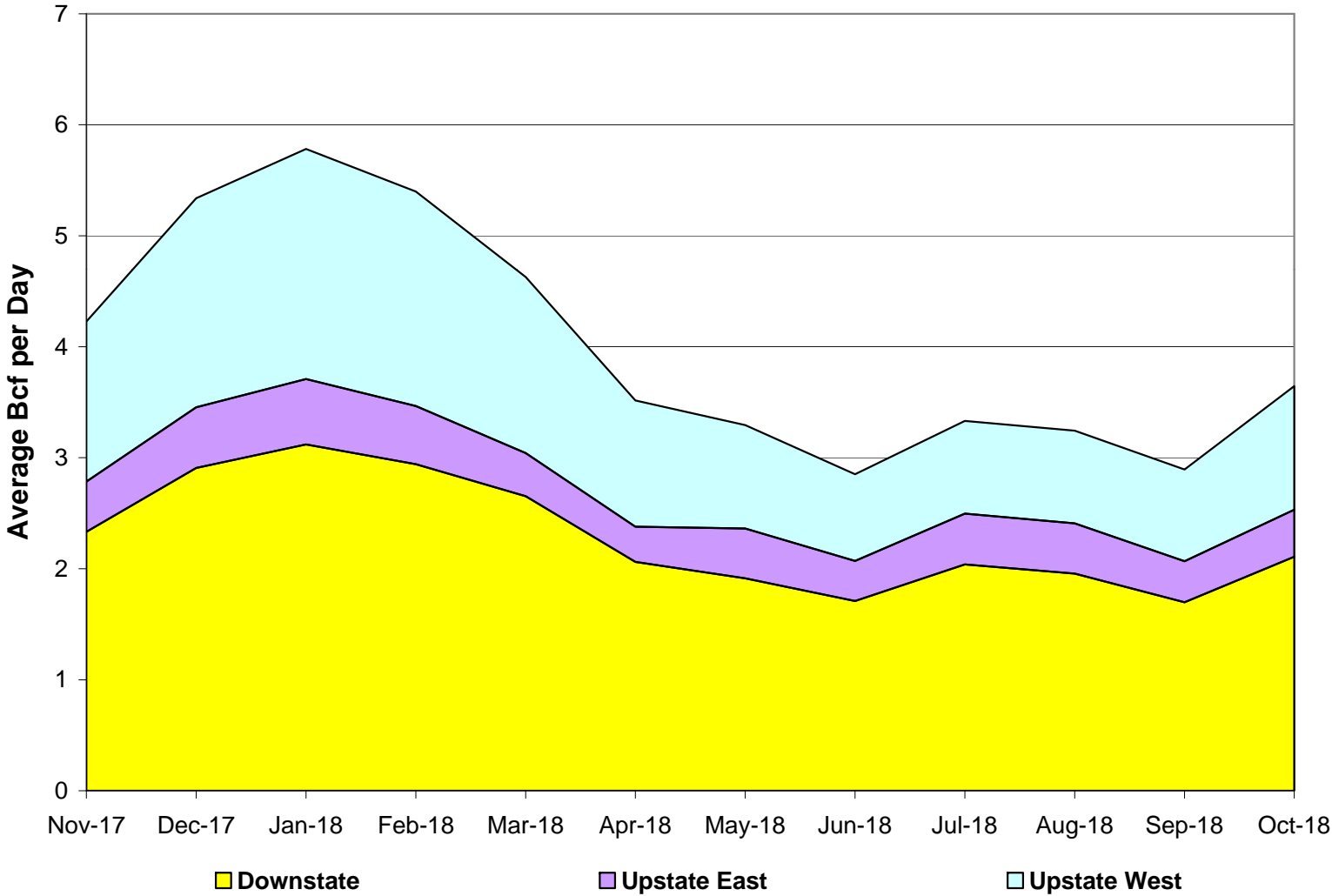


- Indian Point Nuclear Power Plant is assumed to be retired prior to 2018.
- Plant generation is fully replaced with a 2.5 GW natural gas-fired combined cycle plant at the same location.
- Heat Rate assumed 7,064
- Base load consumption of 337 MMcf per day.
- Plant operates at an 82 percent load factor.
- Plant is served by Algonquin and Millennium Pipelines.

# Seasonal Consumption by Sector: 2017 -2018



# Seasonal Consumption by Region: 2017 -2018



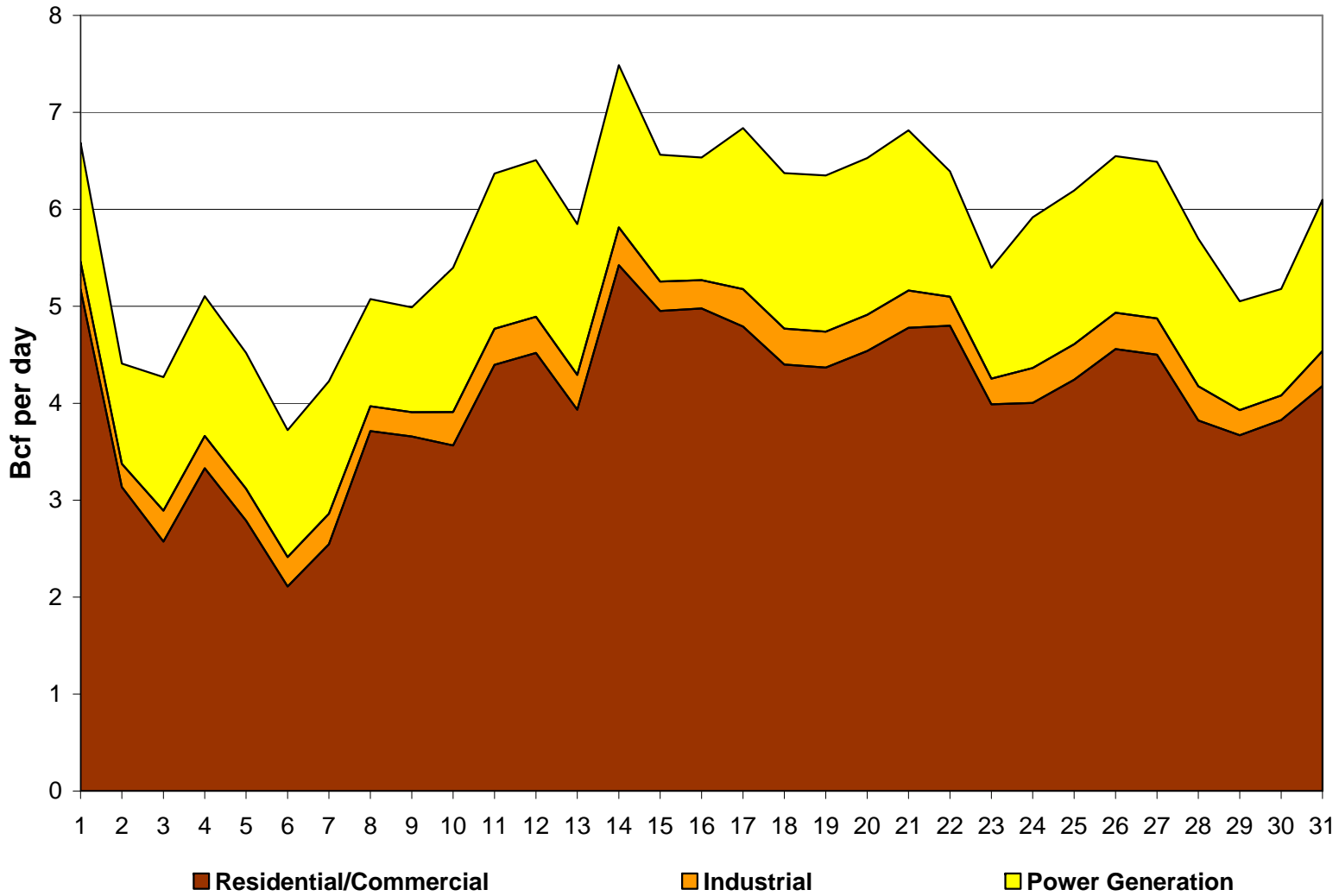
# Daily RIAMS Conditions

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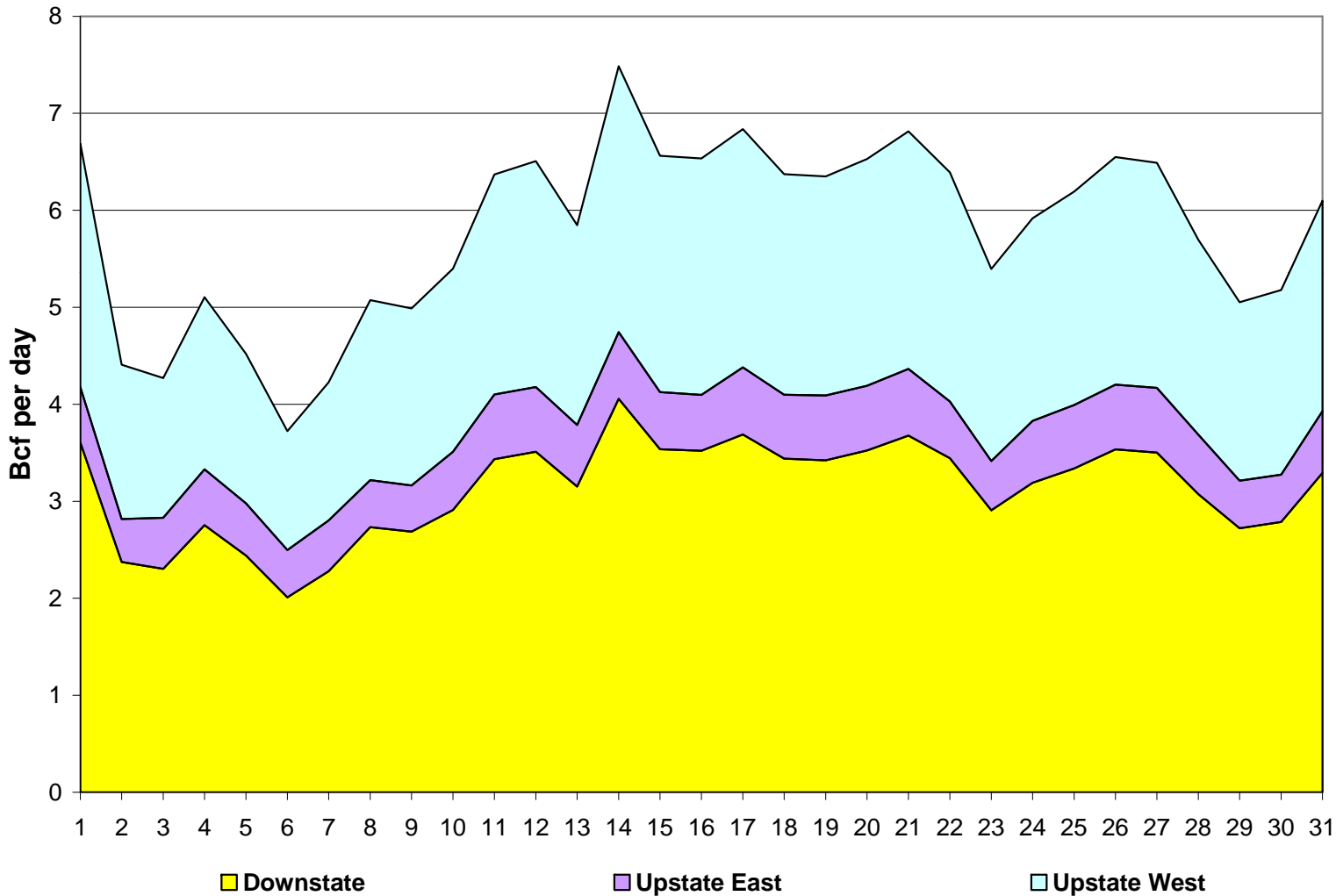


- Projected for January 2018.
- Assumed temperatures on the peak day
  - New York City is 5 degrees Fahrenheit on the peak gas demand day
    - Average temperature in January is 33 degrees; Average minimum is 15 degrees
  - Buffalo is -3 degrees Fahrenheit on the peak gas demand day
    - Average temperature in January is 25 degrees; Average minimum is 7 degrees

# Daily Consumption by Sector: Jan 2018



# Daily Consumption by Region: Jan 2018



# New York Gas Peak and Average Day Imports/Exports



Location	Case	Capacity	Peak Day	Avg Day
Algonquin Exports to CT	Base	1,375	1,375	998
	IP	1,377	1,004	837
Algonquin Imports from NJ	Base	1,069	1,069	946
	IP	1,070	1,070	1,057
Columbia Imports from Western PA	Base	45	27	22
	IP	45	27	25
Dominion Imports from Western PA	Base	1,600	1,119	799
	IP	1,600	1,186	842
Empire State Receipts from Transcanada	Base	820	465	176
	IP	820	465	176
Iroquois Net Exports to CT	Base	1,000	420	308
	IP	1,000	448	344
Iroquois Deliveries to New York City	Base	753	437	362
	IP	778	427	325
Iroquois Receipts from Transcanada	Base	1,195	1,035	825
	IP	1,195	1,035	823
Millennium Deliveries to New York City	Base	167	167	26
	IP	167	141	33
National Fuel Imports from PA	Base	385	231	192
	IP	385	277	230
National Fuel Receipts from Transcanada	Base	426	99	38
	IP	426	99	38
Tennessee Exports to MA	Base	1,170	1,055	507
	IP	1,361	1,181	636
Tennessee Imports from NJ	Base	377	377	76
	IP	377	377	105
Tennessee Imports from Western PA	Base	774	550	393
	IP	773	649	476
Tennessee Receipts from Transcanada	Base	1,051	256	97
	IP	1,050	256	97
Texas Eastern Downstate Deliveries	Base	705	705	340
	IP	705	705	343
Transco NJ to Long Is & Staten Is	Base	689	578	325
	IP	689	578	349
Transco NJ to Manhattan	Base	1,007	1,007	819
	IP	1,007	1,007	828

# New York Monthly Average Gas Imports/Exports



Location	Case	Capacity	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Algonquin Exports to CT	Base	1,375	1,010	1,283	1,362	1,278	1,086	1,054	843	735	782	765	733	1,063
	IP	1,377	758	1,158	1,135	1,145	764	802	717	591	748	694	725	826
Algonquin Imports from NJ	Base	1,069	1,069	1,069	1,069	1,069	1,069	1,069	860	743	760	777	742	1,069
	IP	1,070	1,070	1,070	1,070	1,070	1,070	1,070	1,070	936	1,069	1,045	1,070	1,070
Columbia Imports from Western PA	Base	45	27	27	27	27	27	18	18	18	18	18	18	27
	IP	45	27	27	27	27	36	27	18	18	18	18	18	36
Dominion Imports from Western PA	Base	1,600	960	996	998	960	960	767	640	633	592	640	640	817
	IP	1,600	1,046	1,062	960	1,047	1,145	839	640	640	640	640	640	821
Empire State Receipts from Transcanada	Base	820	114	146	465	263	113	113	113	113	242	201	113	113
	IP	820	114	146	465	263	113	113	113	113	242	201	113	113
Iroquois Net Exports to CT	Base	1,000	587	522	468	588	594	276	-	53	200	200	-	222
	IP	1,000	630	522	532	588	666	304	-	200	239	242	-	222
Iroquois Deliveries to New York City	Base	753	169	367	416	300	290	110	367	622	679	664	205	133
	IP	778	126	367	351	300	218	81	367	476	640	622	205	133
Iroquois Receipts from Transcanada	Base	1,195	858	1,123	1,040	1,093	1,147	471	484	761	1,086	1,005	324	501
	IP	1,195	858	1,123	1,040	1,093	1,147	471	478	761	1,084	993	324	501
Millennium Deliveries to New York City	Base	167	2	67	100	92	33	-	-	-	-	-	-	18
	IP	167	45	67	100	92	57	24	-	-	-	-	-	18
National Fuel Imports from PA	Base	385	231	231	231	231	231	154	154	154	154	154	154	231
	IP	385	308	308	250	285	308	231	154	154	154	154	154	308
National Fuel Receipts from Transcanada	Base	426	25	32	99	56	24	24	24	24	52	43	24	24
	IP	426	25	32	99	56	24	24	24	24	52	43	24	24
Tennessee Exports to MA	Base	1,170	487	1,006	1,120	1,067	691	408	103	59	234	122	234	576
	IP	1,361	701	1,131	1,290	1,200	948	638	234	60	234	157	246	818
Tennessee Imports from NJ	Base	377	66	66	200	66	66	66	66	57	66	66	61	66
	IP	377	66	109	371	199	66	66	66	57	66	66	61	66
Tennessee Imports from Western PA	Base	774	464	545	536	549	464	395	309	283	240	257	289	396
	IP	773	549	683	554	590	601	552	309	309	309	309	309	643
Tennessee Receipts from Transcanada	Base	1,051	61	79	256	145	62	62	62	62	133	111	62	62
	IP	1,050	61	79	256	145	62	62	62	62	133	111	62	62
Texas Eastern Downstate Deliveries	Base	705	417	564	627	564	423	314	282	26	102	79	282	405
	IP	705	423	500	665	554	530	311	282	110	141	141	191	282
Transco NJ to Long Is & Staten Is	Base	689	413	487	551	541	448	413	193	138	138	138	185	276
	IP	689	408	551	578	551	413	413	193	138	138	138	276	402
Transco NJ to Manhattan	Base	1,007	885	1,007	1,007	1,007	1,007	806	675	541	714	665	640	879
	IP	1,007	928	1,007	1,007	1,007	1,007	834	675	604	713	644	640	879

# RIAMS Model Curtailments No Indian Point Case



Peak Day 2018 <b>No Indian Point Case</b>	Firm				Interruptible				Total Unmet Demand			
	Power	Industrial	Residential / Commercial	Total	Power	Industrial	Residential / Commercial	Total	Power	Industrial	Residential / Commercial	Total
New York												
Upstate East	0	0	0	0	-64	-6	-2	-72	-65	-6	-2	-72
Upstate West	0	0	-2	-3	0	-8	-2	-11	0	-8	-5	-13
Downstate	-1	0	-3	-4	-26	-5	-19	-50	-27	-5	-21	-54
Total New York	-1	0	-5	-7	-91	-19	-23	-133	-92	-19	-28	-140
New England	Not Broken Out Firm and IT				-121	-45	-291	-458	-121	-45	-291	-458
Total New York and New England	-1	0	-5	-7	-212	-64	-314	-591	-213	-64	-320	-597

- Case has nearly 600 MMcf per day of unmet demand on a peak day.
  - 75% in New England
  - Remaining 25% New York Interruptible
- No significant firm curtailments within New York.

# RIAMS Model Conclusions

## No Indian Point Case

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- Flows on most pipelines similar to reference 2018 case.
  - Most pipelines are very full on a peak day.
- Unmet demand of about 600 MMcf per day in New York and New England due to pipeline constraints.
- Relative to the Reference case, largest flow impacts from a new gas-fired power plant at the Indian Point site occur on Algonquin and Millennium pipelines.
- Western New York storage is more heavily used to meet load at Indian Point during a peak day.
- Without firm contracts for the plant, gas flow would most likely continue on Algonquin into New England as opposed to meeting Indian Point load.



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